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Poetry.

BLACKSMITH'S NIGHT.

BY RALPH HOYT.

Primeval Night! Infinitude of gloom!
My prayer fulfilled, yet brings it no release!
O for the deeper shadow of the tomb,
Its dreamless peace,
Where the last throb of my sad heart may cease!

Yet thrills that voice again the murky air,
Never a midnight but there came a morn!
Up from the dungeon now of thy despair,
For thon wert born
To conquer sorrow, and all fear to scorn!

To thee is granted to behold how Truth
Links the strong worker with the happy skies
In Care's deep furrows plants immortal youth,
And gives the prize
Of endless glory to the bravely wise!

Center thou art and soul of a domain
Vast as thy utmost wish could e'er desire;
Struggle! the Spirit never strives in vain;
Can ne'er expire;
Up for the scepter! take thy throne of fire!

For man is regal when his strength is sired;
When spirit wills all matter must obey;
Sweeps the resistless mandate like a tide
Away, away,
Till earth and heaven feel the potent sway!

Now as this rayless gloom aside I fling,
The realm of action spreading on the view
Calls to the sooty Blacksmith—be a king!
Thy reign renew;
Grasping thy mace again, arise and DO!

And as the massive hammer thunders down,
Shaping the stubborn iron to the plain,
Know that each stroke adds luster to thy crown
And yon wide span
Of gazing planets shout—behold a MAN!

A glorious Man! and thy renown shall be
Borne by the winds and waters through all time,
While there's a keel to carve it on the sea
From clime to clime,
For God ordains that Idleness is Crime!

Go ask my Mother.

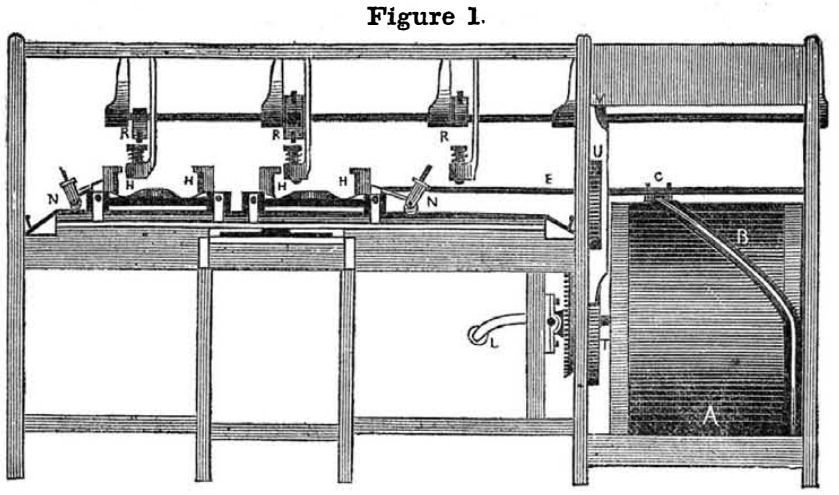
You've told me many a time and oft
That I was fair and comely;
My eyes were bright—my tresses soft,
While other girls were homely.
"She's quite too young to know her will,"
The folks say to each other;
But if you truly love me still—
Why—go ask my mother.

I'm told there's care in married life,
That all the joy's in courting;
When young men have secured a wife,
They say their vows are sporting.
I won't believe what old maids say,
If you won't choose another;
You've bothered me so much to-day—
Do—go and ask my mother.

Never begin a thing till you have well considered the end.

SHAW AND GOULD'S IMPROVED PRINTING MACHINE.

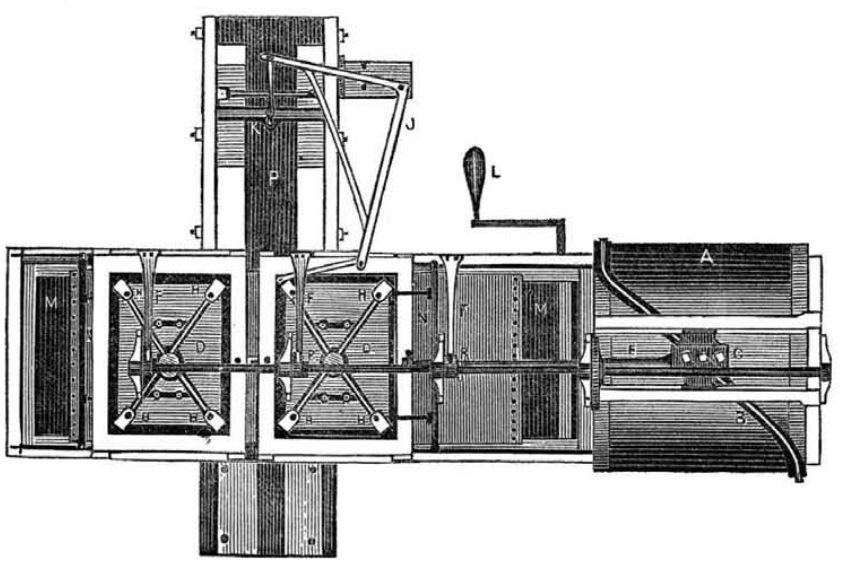
Figure 1.



The patent for this machine was issued last week, and as it presents some novel features for printing paper, oil cloth, and is also adapted for other articles, we have no doubt but what it will be very interesting. The inventors are Messrs. W. Shaw and Ezra Gould, of Newark, New Jersey, and Mr. Shaw carries on an extensive business there. This Press is the best that we have seen, next to the hand block, for printing calico bandanas and shawls, the cylinder not being adapted to that kind of printing. The nature of this invention consists in giving two blocks, placed in two plattens, an intermitting reciprocating motion, so that two impressions will be made during the forward and backward stroke of the piston that moves the blocks. It also supplies the blocks with color from two boxes, and feeds in the paper or oil cloth to the blocks and takes it away—the motion for doing this being dependant on the motion of the blocks.

Fig. 1 above is a longitudinal side elevation and fig. 2 a top view looking down upon the machine. The same letters indicate like parts on both the figures. Two long stout tables, the one traverse to the other, are herein represented. The cross one is the cloth feed table and the other is the printing frame. A, is a large drum at the end of the printing table. B, is a projecting flange or rail fastened on the periphery of the drum. This flange is eccentric, as represented. C, is the head of the piston rod E, which moves the printing blocks. This piston head grasps the rail B, but is guided in a straight line in the guide rests seen in fig. 2. When the drum revolves, therefore, the piston rod will be guided backwards and forwards by the angular part of the rail B, but the piston rod is stationary while that part of the rail around the end of the drum is passing through the jaws of the piston head C. This gives the piston rod and the blocks attached to

Figure 2.



it an intermittant reciprocating motion by revolving the drum. D D, fig. 2, are the plattens. The printing blocks are secured to them in the inner side. These plattens with the blocks stand a little distance from the paper below being secured to coiled springs H H, at the four corners, which allow the plattens with the blocks to be pressed down, but raise up the blocks when the pressure is removed. The plattens therefore have square stationary frames around them all connected together and slide along on the table guided by an upraised rail on each side which fit into grooves in the edges of the platten frames.—M M, are the two boxes filled with color, and N N, are two brushes secured by short arms to the ends of the block frames. The color boxes are a little below the color cushions—one of which is now seen at the right hand fig, 2, inside the color box M. The brushes N, are secured at the side to small wheels fig. 1, which run down a rail into the color boxes and again carry up the brush to supply the cushion, for the block. R R R, are spring pistons, suspended from the framing above.—These spring pistons are forced down on the centre of the plattens to make the impressions during the intermissions of the blocks. There are therefore four cams on the shaft above, which force down the pistons. The middle cams are double and the other two single—the side ones alternately press down one block on the color cushions to supply it with color and the middle cams the block which makes the impression. The motion of the cams on the shaft above, must therefore coincide with the motion of the piston rod. They are united in motion together by the gearing from the crank shaft L, represented by T U, and an intermediate wheel not seen. The way in which the blocks are operated and supplied with color, will be understood by the foregoing. The rest of the invention relates to the feeding of the piece of paper and the taking of it away regularly when printed. This must also be an intermittant progressive work to coincide exactly with the action of the blocks. The paper is fed under the blocks on the cross table between the guide plates (for different widths,) seen at the right side fig. 2. The piece of paper passes through to a small catching bar K, which has a vibratory motion, and catches and lets go (it lets go for the inward motion and catches for the forward motion) to draw the printed paper from under the blocks and thus it feeds in unprinted paper for the next impression. The small catching bar is operated by crooked levers J, secured to one of the block frames, as will be easily noticed, and oscillating on a pivot fixed on a block of the feed table. By this connexion the motion of K, must coincide with, for it is dependant on the motion of the block frame to which the lever J is attached by the small flexible arm. All the motions therefore are in harmony with the motion of the drum A, which works the whole. P, is only a central top on the feed table. The catch bar K, can be set to take a greater or less catch, for different patterns. For certain kinds of work, the advantages of this machine over all others are apparent.

RAILROAD NEWS.

The Cayuga and Susquehanna Railroad.

The owners of the Cayuga and Susquehanna Railroad, a flat-bar road, about 30 miles long, running from Owego to the head of Cayuga Lake, have decided to relay the Road with heavy T rail and change the terminus at Owego, thus avoiding the inclined plane at that point, and taking passengers into the heart of the town. At Owego the Road will connect with the Erie Railroad, and finish, with the aid of Cayuga Lake, another line of communication with the West. This Road will increase materially the business of the Erie Railroad. The cost of this improvement will be about four hundred thousand dollars. It will add largely to the prosperity of that section of the country, with a more direct communication with the great metropolis. Formerly the Road has only been used with horse power; it will now be amply supplied with locomotives and first-class cars. It will probably be in running order by the 1st of August next.

Tennessee and Virginia Rail Road.

The Tennessee people are in extacies at the news from the Virginia Legislature, announcing the passage of the bill for the construction of a railroad from Lynchburg to the Tennessee line, in the direction of Knoxville. It is estimated that the road, including the tunnel through the Blue Ridge, will cost $3,500,000. The State of Virginia takes three-fifths of the stock or $2,100,000. Of the remaining $1,400,000, eight hundred thousand have already been taken along the proposed line of the road. This leaves $600,000 of the stock still to be taken.

The route will be one very difficult of construction, but when completed, it is destined to enjoy an immense amount of travel between the valley States and New York.

Rochester and Lockport Railroad.

The directors of this road have determined to push the road through with all possible despatch and they have recently taken their measures to secure the taking of $200,000 more stock than was taken before. This will be the most level road for its length in the United States and also one of the most direct. The heaviest grade is less than 25 feet to the mile. It runs through Munroe and Orleans counties, the very garden of this State.

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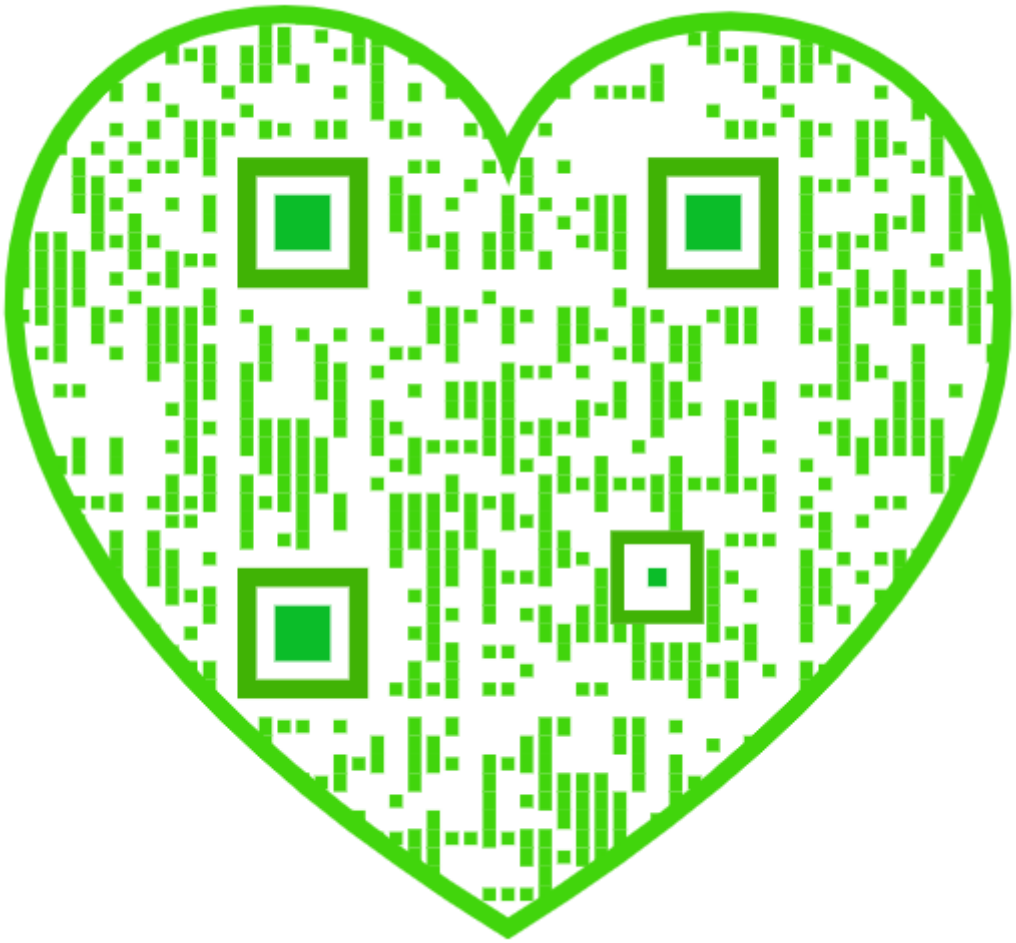

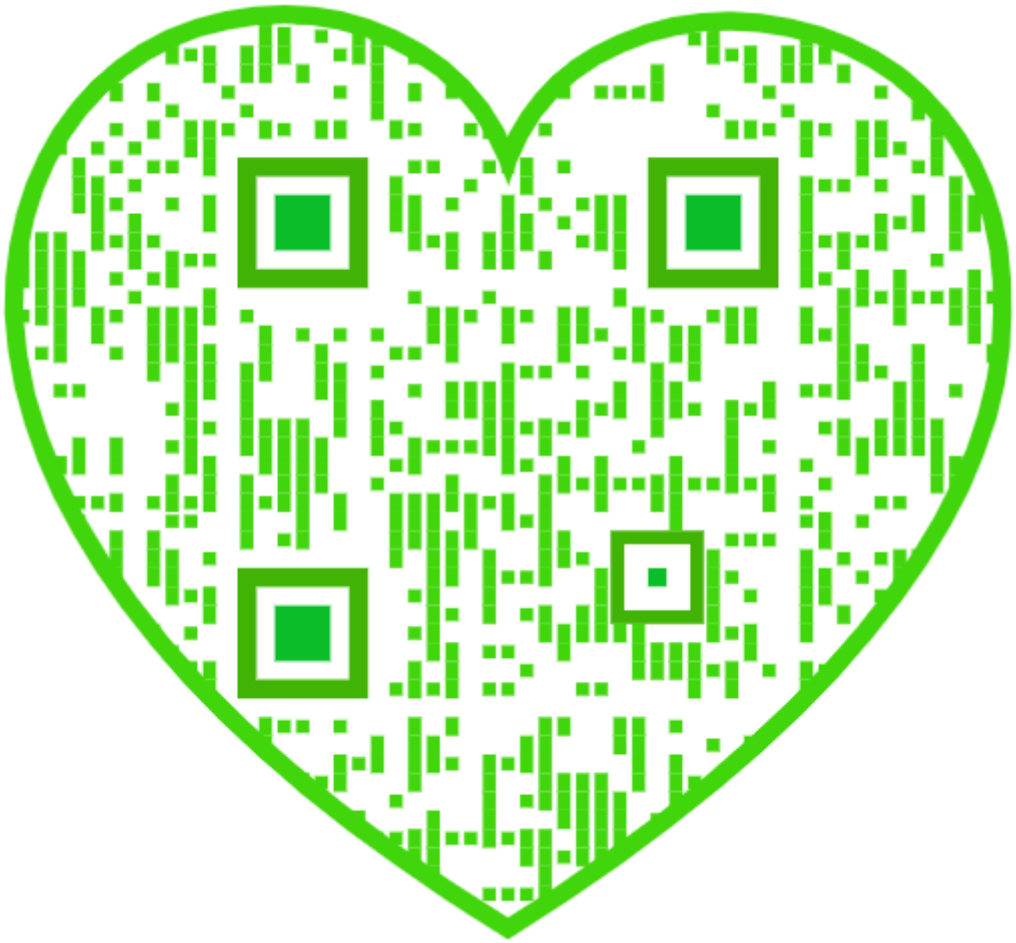

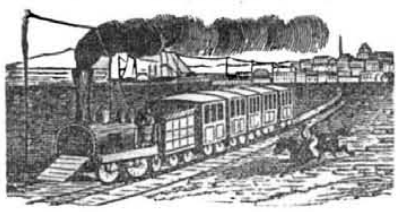

Great Riot and Loss of Life.

On Thursday evening of last week our City was the scene of a most terrible and afflicting event—an event without a parallel in the history of our republic. No less than 17 persons were shot down in the street and 31 wounded some fatally, for five have died of their wounds since. There may be more wounded, as is generally the case in crowds, than the public is aware of. The news of this event has no doubt pierced the remotest parts of our country by the time we write, but still we believe that many of our readers will be pleased with our account of the catastrophe. Two men known among the play-going people of the world as great tragedians, were the remote cause of it. The name of the one is Edwin Forrest, the name of the other W. C. Macready. The former is an American, the latter a native born Irishman, some say, and some say an Englishman. When Mr. Forrest played in London a few years ago, he was hissed and severely criticised by the papers. To pay back this compliment some evil disposed persons among us determined that Mr. Macready should be driven from the American stage, and on Tuesday evening of last week, when he appeared at the Opera House, he was pelted from the stage by rotten eggs and chairs. Mr. Macready refused to play any more, but some of what are called our most respectable citizens (Washington Irving one of them) published a card requesting him to play out his engagement. At their request he consented. On Thursday he appeared on the stage and the house was beset inside and out by individuals who were determined it seems to drive him away by hooting within and throwing stones without. The military were called upon, and they were assailed, when the infantry, (after the "sour milk cavalry" fled,) fired two volleys and killed and wounded about the number mentioned. We have carefully read the evidence adduced before the Coroner, and we agree with the Jury, that bloodshed might have been avoided, if the business had been well managed. We only wish that the real rowdy characters who were at the root of the disturbance had suffered instead of the unoffending and innocent. There has always been a prejudice against the Opera House, because it is aristocratic. It is too exclusive for the feelings of our working people. It is a civil right no doubt though not a moral one. But what shall we say of

"The Theatre, it was from the very first
The favorite haunt of Sin, though honest men
Maintained it might be turned to good account
And so perhaps it might, but never was.
From first to last it was an evil place,
And now such things were acted there, as made
The very devils blush, angels and holy men
trembling retire."

The most sad and affecting part of this narrative is, that some papers and parties are endeavoring to make political capital out of the blood of their fellow creatures No party had any thing to do with the matter and five of Macready's countrymen are among the dead.

In reviewing the evidence before us, we believe that the men who are primarily guilty of the whole evil, are the profligate gambling rowdies, sons of some wealthy families, who pay bullies and braggadocios to fight their quarrels. The working people although appealed to in flaming placards, had nothing to do with the disturbance—they are perhaps the quietest portion of our citizens. The hyenas of the mob are men celebrated for brawling patriotism, drinking and knocking down opponents on election days. These characters generally escape (through venality) the State Prison. We wish to see a return to the good old times, when men's prtriotism will be measured by their noble and quiet demeanor to the law, instead of the now disgraceful process of rewarding with office and approbation, many whose conduct is a disgrace to the Republic.

Commissioner of Patents.

Thomas Ewbank Esq , of this city, known by his great work on 'Hydraulics,' and by others, evincing research, has been appointed Commissioner of Patents by the President.

We presume Gen. J. W. Harvey, was the choice of nine-tenths of the inventors of this city, and of the whole country, as far as he is known. At an adjourned meeting of the Inventors of this city, after full discussion, General H. received the unanimous vote of the whole meeting as their first choice.

The undue influence of one individual besieging the capitol has deprived the great majority of those interested in patents of having one of their own choice as Commissioner of Patents.—*Artisan.*

☞We do not like to be inviduous, because it is not the right way to answer a fair and honorable opponent. We believe that the Artisan is wrong and misinformed on the subject. The meetings of certain inventors held in this city who nominated Gen. Harvey, were composed of but a tithe of the inventors in this city, and those interested in patents out of the city know Mr. Ewbanks better by reputation than Gen. Harvey. We do not say a word against Gen. Harvey—it is well known that he is an able man and an inventor of the very first order. We venture to make this assertion respecting the meeting of inventors in this city that nominated Gen. Harvey, viz. that it did him more harm than good. Why? Because the most officious members of that meeting were not practical mechanics. Now it is not generally known to many, how much influence our practical mechanics are beginning to exercise and not in any undue way, but just because our right thinking and leading men are now conscientiously, as a matter of justice, beginning to recognise their claims and extend to them the right hand of encouragement.

Pennsylvania Iron Ore.

The Reading Gazette says, the iron beds in the vicinity of our city, and indeed those within our limits have, within its last year or two received a large share of attention from those engaged in the business, and their labors seem to have met with great encouragement from the value of the ore which their excavations have discovered. On Penn's Mount, a mountain known to contain vast quantities of the ore, the most extensive and valuable veins of various kinds of iron have been discovered. For many years these rich deposits were abandoned and the openings had been entirely neglected, either for the want of capital or the absence of a proper spirit of enterprise, until they attracted the attention of our enterprising fellow-townsman, George W. Oakley, Esq., who appreciated their value, and in the face of most discouraging barriers, sufficient to retard the progress of one less determined, he went to work with his men, and by personal efforts and skill, succeeded in drawing from the bowels of the mountain, ore as rich and as valuable as ever was found in the placers of the Sacramento.

Improvement in Plank Roads.

M. D. Codding, of Rochester, has made an improvement in the construction of plank roads which appears to be worthy of consideration. It is arranged so that the wheels run lengthwise of the timber, which renders it much easier for the team, while the horse track is crosswise. The horse track will be worn sooner than the wheel track, and can be renewed without disturbing the latter.

Combined Boat and Waggon.

E. H. Howard, late Postmaster at Sheboygen, Wisconsin, has started for California in a boat wagon of his own construction. The box of the wagon is a boat, set on steel springs the whole of which is covered with oil cloth, making a very comfortable house. The establishment is so arranged that, upon reaching a river, the running gears of the wagon can be unshipped in a few minutes, and taken aboard the boat while crossing the stream. This is the true American spirit of enterprise and ingenuity.

Major Whistler died in St. Petersburg, Russia, on the 7th April. He was the well known American Civil Engineer employed by the Emperor to construct the grand Railroad to Moscow.

Manufacture of Gold.

The Liverpool Albion says :—"We have read that Boyle once very nearly succeeded in making gold ; that he showed the experiment to Sir Isaac Newton, when both became frightened and threw away the ingredients.—A gentleman comunicates to the editor of the Mining Journal, that having experimented some ten years ago on the stratification of the earth and the formation of mineral deposites he believes with truthful results, he turned up one of his old experiments a few days ago, when he found running in a kind of spiral stiring through one part a small quantity of gold No gold was used in the experiment, and the conclusion arrived at is that it has been formed from some of the other substances. This, however, is nothing to what is asserted by an iron founder of this town. This gentleman must have discovered the true philosopher's stone, which so many sages of the olden time spent their lives in trying to obtain. He declares that he has found out a process by which he can change any quantity of iron into gold. Before three months are over he says we shall hear more of this marvel. He promises to produce gold in tons in short in any quantity."

[None of our readers we presume will doubt the above. Our mechanics turn out tons of gold every week from their iron castings, and our farmers from their wheat and corn fields. The only gold used in the process, is skill and industry.

Ancient Musical Instrument.

The Egyptian flute was only a cow's horn, with only three or four holes in it ; and their harp or lyre, had only three strings. The Jewish triumpets that made the walls of Jericho fall down, were only ram's horns ; the psaltery was a small triangular harp or lyre, with wire strings, and was struck with an iron needle stick ; their sacbut resembled the *zagg* used at Malta in the present day, a species of bagpipe ; the timbrel was a tamborine, and the dulcimer a horizontal harp with wire strings, and struck with a stick like the psaltery—such as are seen about the streets of London in the present day. Imagine the discord produced by 200,000 of such instruments while playing at dedication of Solomon's temple.

American Consuls' Fees.

The largest amount of fees received by Consuls abroad, according to a table recently published, is that of the consul at Liverpool, who in 1845, received $9,963. The consulates at Rio Janeiro and London are worth $9000.—Havana and Glasgow $6000. St. Thomas and the Sandwich Islands each yield $4000. The consul at Alexandria, in Egypt, receives a salary of $3000. The consuls on the coast of Barbary each receive a salary of $2000, and five in China receive a salary of $1000 a year each ; six other posts yield $2000 per annum ; eighteen are worth $1000, and the remaining ninety consulates range foom $900 to $4 per annum, much the largest proportion of them being worth less than $500. The expectants of office will be able, from this exposition, to see which are the fattest places and to choose accordingly.

The Chemical Telegraph.

The Baltimore Clipper says we had the pleasure of witnessing the action of Bain's Chemical telegraph, last Saturday, and were much pleased with the facility, rapidity and accuracy with which communications were transmitted to and from Washington. The characters are impressed with great distinctness on the chemically prepared paper ; and although a new alphabet has been introduced, it is already so familiar to the operators, that they read it with the same facility that they would plain printing. The line will soon be in operation as far as New York, from whence it will be extended by capitalists in that city to Boston and Halifax.

Death by Chloroform.

The Cincinnati Atlas says that a young man by the name of George, who was suffering from deafness or some other affection of the head, came to this city a few days ago, to submit to an operation for his relief. Chloroform was admistered by the surgeon, that he might undergo the operation without suffering, in consequence of which the patient died.

Shoe Pegs.

At Vienna Village, in the county of Kennebec Maine there is a factory that makes 1,000 bushels of shoe pegs per annum. A great number of wooden pegs, are now sent to England where they are used in Cabinet work.

The logs are sawed into blocks of suitable length for the pegs, and the ends are planed smooth. Grooves are then cut on the ends of these blocks, crossing each other at right angles, and these form the points of the pegs. They are then separated by splitting the blocks, a knife being introduced between each row of points, corresponding with the grooving.

The machinery was invented by Thomas Morris of that place.

A Blazing World.

Lieutenant Maury, the Superintendent of the National Observatory, gives the following piece of pleasant information in a recent address :

It may be that there is now, at this very time, in the firmament above, a world on fire. Argus, the well-known star in the southern hemisphere, has suddenly blazed forth, and, from a star of the second or third magnitude, now glares with the brilliancy of the first.

A Mean Rich Man Fallen.

George Hudson, the English rail way King, has fallen. He was detected in a mean speculation by which he had pocketed $70,000 as profit of shares of the Great North of England Line, the shares being sold above the market price.

This is as it should be, but there are many among us who would think that he was only a very cute man and would honor him more for that than if he were honest.

A Georgia Locomotive.

A new locomotive named the Native has been constructed at Augusta, Geo., under the superintendance of the chief machinist of the Georgia Railroad Company, Mr. W. Henderson. It has six driving wheels and weighs twelve tons, and is in every way said to be a beautiful piece of workmanship. The Southern mechanics are exhibiting the right spirit.

Statistics of Forks and Spoons.

A work on the "History of the Precious Metals," recently published in Hartford, Conn. says the value of the silver Tea-spoons in the United States is estimated at $36,000,000 ; of Silver Table-spoons $27,000,000 ; of silver forks $4,500,000, and of plate and dining service $5,500,000.

The Gold Dollar.

This beautiful coin has at last been issued. It is somewhat smaller than a five cent piece, and is very beautiful. It is our opinion that it is the most beautiful coin in the world.

Steamboat Competition.

There is great competition this season on almost all our rivers between rival steamboat companies. On the Hudson, the general fare is 50 cents, too little by half a dollar On Lake Ontario steamboats have been running for 12½ cents from Toronto, passage that used to be 5 dollars. Well if companies carry passengers for nothing, it is all very well, but nobody thanks them. A fair uniform price is the best policy in the long run.

Calico Printing Machines.

There are cylinder printing machines in Messrs Hoyles print works, Manchester, England, which print a mile of 5 colors of calico in one hour. If fifteen of these machines work uninterruptedly for only ten hours each day, and for six days in the week, they would be able to print cotton dresses in one week for 160,000 ladies! The actual number of miles of calico printed by this eminent firm in a single year exceeds ten thousand more than sufficient to measure the diameter of our planet with.

A beautiful steamer is now on the stocks at Geneva, N. Y., destined for the Lake. Her length is 260 feet keel, beam 30 feet, including guards 58 feet, hold 18 feet. Her engine is to be of 500 horse power.

By excavations under the Inquisition rooms at Rome, a most horrific scene has been developed, of skeletons innumerable buried in the walls, and a reservoir where many were consumed by quickiime.

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The Mineralogist.---The description and locality of every important Mineral in the United States.

(*Continued.*)

CHROMATE OF IRON.

Occurs in masses, grains and crystals, of a brownish black color ; brown powder ; rather metallic lustre ; uneven fracture ; and specific gravity of about 4. Infusible ; opaque ; brittle. Found at Milford, Ct. ; Cummington, Mass. ; Staten Island, N. Y. ; Hoboken, N. J: ; in detached masses on the Westchester and Lancaster roads, from 10 to 14 miles from Philadelphia ; Barehills, near Baltimore, Md. ; Loudon Co., Va.

CARBONATE OF IRON.

Occurs in masses composed of crystalline plates of a yellowish color ; vitreous lustre ; specific gravity of 4. Its surface presents a white color when scratched. Translucent, when newly broken ; infusible ; yields to the knife ; slowly dissolves in aquafortis. Exposed to the air, its surface becomes of a brownish black color. Occurs at Milford, Ct. ; and near Baltimore. Md.

CARBURET OF IRON. (RLACKLEAD.

Occurs amorphous and in crystals, of a dark steel-gray color ; glittering lustre ; and specific gravity of 2. Unctuous to the touch, and soils the fingers. Found at Sturbridge, Mass. ; Mount Monadnock, Sutton and Chester, N. H. ; Cornwall, Sharon, Hebron and Tolland, Ct. ; near Lakes George and Champlain, and N. Y. City, N. Y. ; Transylvania, Va.

MAGNETIC OXIDE OF IRON.

Occurs in masses, crystals and thin plates, of an iron black color ; shining lustre ; specific gravity of 4.4. Becomes brown when heated. Insoluble in aquafortis. Found at Topsham, Me. ; Goshen, Pa. ; Wachita river, As.

NATIVE IRON.

Occurs massive, net-like, and presenting small cavities of the color of platinum, and specific gravity of 7.7. Malleable ; attracted by the magnet. Dissolves with ebullition in all strong acids. Found in Canaan, Ct., and Guilford Co., N. C.

PHOSPHATE OF IRON.

Occurs amorphous, of a greenish white or yellowish gray color when first exposed to air, changing to blue ; specific gravity about 2. Soft, and soils the fingers ; dull ; fusible. Found in mud and clay, at York, Me. ; Plymouth and Hopkinton, Mass. ; and Allentown, N. J.

SULPHURET OF IRON. (IRON PYRITES.)

Occurs massive, in crystals, and in hair-like portions, or cellular. Color, bronze. Metallic lustre ; hard ; brittle ; fusible. Specific gravity 4½. It is very abundant. Found near Sparta, N. J. ; Boston, Mass. ; Brookfield and Huntington, Ct. ; Brunswick, Me. ; Staten Island, Anthony's Nose, N. Y. ; 20 miles from Baltimore, Md. ; near Zanesville, and Steubenville, O. ; Strafford and Shrewsbury, Vt.

FIBROUS BROWN OXIDE OF IRON. (BROWN HŒMATITE.)

Occurs amorphous, showing circular elevations, and stalactical, of a brownish color, the outside resembling black glazed earthenware. It has a silky lustre, and fibrous structure.—Yields to the knife. Found at Bennington and Monkton, Vt. ; Salisbury, Ct. ; Staten Island, N. Y. ; Burlington Co. N. J. ; Lancaster, Jenkintown, and Messersburg, Pa. ; Gallatin Co. Ill. ; Lawrence Co. As.

FIBROUS REDOXIDE OF IRON. RED HŒMATITE.

Occurs amorphous, stalactical, and in concretions or portions resembling in form a bunch of grapes, having a brownish yellow or red, or steel gray color ; rather metallic lustre, and a specific gravity of 4 75. Receives a polish ; infusible. Found at Kent, Ct. ; and the Perkiomen lead mine, Pa.

COMPACT RED OXIDE OF IRON.

Occurs massive, slaty, kidney form, in rounded masses and crystals, of a reddish brown color with a mixture of steel gray. Specific gravity 3.5 to 5. Found at Canton, N. Y. ; source of the Gasconade River, Mi. ; Elk River, Tenn.

SANDY MAGNETIC OXIDE OF IRON.

Occurs finely crystallized, of an iron black color, being very magnetic, and having a black powder. Infusible. Localities : Topsham, Me., Somerset, Vt. ; Franconia, N. H. ; Williamstown, Woburn, Middlefield, Mass. ; Suckasunny, N. J. ; in the Highlands, at Crown Point, and near Lake Champlain, N. Y. It is known under the name of *mountain ore.*

For the Scientific American.

Steam Engineers.

There is no class of mechanics in the world that have so much responsibility resting upon them as Steam Engineers. What vast amounts of property, and thousands and thousands of lives are intrusted in their hands.

Imagine the number of steamboats running on almost every sea, lake, river, and creek in the habitable world, and the endless lines of railroads, with the swift moving locomotive to which are attached its load of cars, the passengers all quietly enjoying themselves while moving probably at the rate of twenty or thirty miles per hour. Now every one of these steamboats and locomotives, no matter how large or how small, must have its engineer.

Did it ever strike you while driving along at such a fearful rate, that the black, grim looking men moving about this machinery, were the kings of that machine, holding your destiny, life or death, in their hands, who in a few moments could send you, as well as all those on board, to your last account, without giving you time to say, God have mercy.—If such has ever been your thought while travelling by steam, you have no doubt figured in your minds what very great responsibility was placed in the Engineer, and what kind of a man he ought to be. You would have a sober, steady, intelligent man, one that could plan, draw, build, run, and keep in order the machinery intrusted to his care, and with such a man you would have no fears about travelling, nor would there be any danger with an engineer possessing these qualifications, for if any thing should go wrong about the engines or boilers, he would know when, where and how to apply a remedy at once, he would be constantly on the look-out to see that every part of the machinery was in good order and had the proper attention from all those connected with the engine department, and could detect at once any neglect on the part of his subordinates in time to prevent *accidents*, as it is called, but more strictly *ignorance.*

Any man can open his watch case, examine the works, wind it up, and set it going, but could he make a watch, or take the machinery to pieces, overhaul, repair, put together, and set it running again. If he could, he would be a watch maker, but from the mere fact of his knowing how to open, look at the works, wind up, &c. you would not conclude he knew anything about the interior arrangement of his time piece. And thus it is with hundreds of Engineers, or rather, starters-and-stoppers, they go on board of boats, or on locomotives, and after being there a short time learn how to make fire in the furnaces, raise steam on the boilers, start and stop the engines, and are then put in charge of a machine they know no more about than the man does about the watch that he winds up, and they have to deal with an agent as subtle as the lightning from heaven. Surely such men as these should not be trusted with so many valuable lives, and such a vast amount of property, who through Ignorance, in a moment would consign every thing to destruction, How very careful then should the proprietors of steamboats and railroads be in the employment of Engineers, and take none but those who could pass a strict examination as to character and qualifications. J. M.

Mahogany Stain.

1. Pure Socotrine aloes 1 oz., dragon's blood ½ oz., rectified spirit 1 pint, dissolve and apply two or three coats to the surface of the wood ; finish off with oil or wax tinged with alkanet.

2. Wash over the wood with strong aquafortis ; and when dry apply a coat of the above varnish ; polish at last.

3. Logwood 2 oz., madder 8 oz., fustic 1 oz., water 1 gallon ; boil 2 hours, and apply it to the wood several times boiling hot ; when dry slightly brush it over with a solution of pearl-ash 1 oz. in water 1 quart ; dry and polish as before.

At the latter end of last year, stones of a dark brown color were forced out of the earth in great quantities at a place called Lobis, in South America. The stones floated on water and were thrown up in many places in the river. They are of volcanic origin undoubtedly.

The Speed of Electricity and the way to Measure It.

This is a continuation of the article on page 253, by S. C. Newman, Esq. of the Woonsocket R. I. Telegraph Office, and taken from the Patriot, as mentioned before.

Take any given length of insulated wire coiled into a small compass as convenient, fasten the two ends (horizontally) a little distance apart, unto a piece of board with a small break near each end of the wire. Electricity will exhibit no light or spark when passing through a conductor, unless it meets with interruption in its course, and this is what the little breaks at each end of the wire are for, that the fluid may be rendered visible at the two ends of the wire. Next, take a small revolving mirror, and place it so that it will reflect the sparks made at these breaks when the Electricity is permitted to pass over the length or coil of wire. The reflection of the sparks will be thrown upon the walls of the room, which should be darkened to render them visible. It next becomes necessary to know the exact number of revolutions the mirror performs in a second of time. The following is an accurate way. A Siren is an instrument used to denote the required number of vibrations in a second to produce a musical note of any particular pitch, and the note which the Siren produces will accurately indicate the number of revolutions made by its axle ; and by attaching the mirror to the axes of one of these Sirens, the number of its revolutions will be known while reflecting the electric sparks.

The next step is the arrangement of the room. The room should have an arched ceiling, in a precise semicircle, carefully measured and divided into geometrical sections. The apparatus is now supposed to be completed for solving the problem, that of accurately measuring, or as you express it, "computing" the wonderful velocity of Electricity.

The process of arriving at the required result, is a very simple mathematical one. Any number of revolutions of the mirror, and any length of the coiled wire will be sufficient, provided they are known. We will now suppose the wire to be twenty five miles in length and a continued series of discharges from an electrical battery passed through its length. The first spark will be seen at the little break at the first end of the wire, and the second spark will be seen at the break at the other end of the wire Now these two sparks will be seen (as far as the eye can detect) at the same instant of time, although the Electricity traveled twenty-five miles between the times it produced the two sparks, and here we meet the obstacle that had so long baffled the ingenuity of men. If the sparks were made at the same instant of time, as they appeared to the eye, then the transmission of Electricity must be instantaneous. But if there is any actual time between the production of the two sparks, then that must be the time the Electricity occupies in travelling twenty-five miles the length of the wire. To test this, let us apply the mirror. If the sparks are simultaneous, then the reflections will occupy the same relative positions on the wall that they do at the place where they are produced. But if there is a space of time between the production of the two sparks, the revolutions of the mirror will detect it. If we give the mirror one hundred revolutions per second, with twenty-five miles of wire, the reflections will be varied one-eightieth part of the circle of the arched wall. From the established laws of optics it is absolutely certain that the mirror has now made one-eightieth part of a revolution while the Electricity was passing twenty-five miles. Here we have a plain sum. In travelling twenty-five miles, the Electricity occupies one-eightieth part of the one-hundreth of a second, equal to one-eight-thousand of a second, and the sum becomes simply this :—If the fluid goes twenty-five miles in the eight-thousand of a second, how far will it go in one-second ? Ans. Two hundred thousand. Then subtract one tenth, which will more than cover any loss in the operation, though it is usual to do so, and you have an actual demonstration that Electricity travels with the "enormorous velocity" of one hundred and eighty thousand miles in a single second of time !

Let us illustrate this truly wonderful velocity by a few familiar examples. The letter E is made the quickest of any in the Telegraphic alphabet. If I strike the writing-key of the telegraphic apparatus so as to produce the letter E at Woonsocket, it will be written at different places as follows :—from Woonsocket to Providence is 16 miles, and the E would be written there in the one-eleven-thousand-two hundred and fiftieth part of a second ; or in other words it would make five thousand and six hundred and twenty-five journeys to Providence and back in a second !—From Woonsocket to Washington is 445 miles by wire, and the letter E would be written at the Capital of the Nation in less than the one-four-hundreth of a second ; and would make more than two hundred journeys there and back in the short period of 60th part of a minute.

From Woonsocket to New Orleans is 1810 miles by wire—the letter E written as above, would be visible in New Orleans in a little more than the one-hundredth part of a second —or would make 49 entire journeys to the Crescent City and back to Woonsocket, and reach Camden, S. C., on the return portion of its fiftieth journey in a single second.

In these estimates the obstructions arising from way-stations are supposed to be removed.

We may regard the passage of Electricity as instantaneous, so far as any of our senses are concerned ; for its velocity is such, that it will start from Woonsocket, make 7 passages around our earth, and reach the Capital of the Chinese Empire on its eighth journey, in the brief space of a single second of time—a rapidity far too great to be detected by human vision, unaided by the apparatus I have endeavored minutely to describe.

This enormous velocity may rationally excite a wonder, and even a doubt, in the minds of such as have not investigated the subject ; but the insatiable mind of man has not been contented with a doubtful result :—the experiment has been tried with wire from half a mile to one hundred miles in length, and a great variety of velocities given to the mirror ; and whatever be the length of wire or number of revolutions of the mirror, the sparks will occupy the same relative position on the semi circular arch, required by the above given velocity ;—so that the result is fairly entitled to the rank of a mathematical demonstration.

There are many beautiful reflections to be drawn from the contemplation of Electricity, as it justly claims a high rank among the most brilliant productions in the physical world.

Kase's Patent Pump.

We understand that Mr. S. P. Kase of Danville, Pa., has made a contract with the government to furnish the national vessels with his valuable patent pumps, and is now engaged in preparing the necessary castings for that purpose. An examination was made under the superintendence of the Engineer in Chief Mr. C. H. Haswell, which resulted in the adoption of these pumps. We are satisfied from experiments made in our presence that their introduction into the national vessels will prove useful and satisfactory. For domestic uses, Mr. Kase's pumps are unsurpassed —many of them are now used in wells varying in depth from 10 to 95 feet deep, and capable of forcing water out of a pipe to the top of two story houses. A man may draw water from almost any depth, and throw it on a three story house by his own strength, thereby enabling him to convey water into any part of his house, to wash windows and carriages, to water his garden, pavement, flowers, &c. and rendering the atmosphere during the hot season cool, pleasant and healthy.—The pumps can be made of almost any size, throwing water at from 24 to 150 gallons and upwards per minute, and may be attached to any power. How much property might be saved from fire by having one of these pumps attached to every house in our villages and in the country.

There is no longer need to send abroad for Turquoise Oil Stone. A quarry has been discovered in Derby, Vt. which is said to be in all respects equal to the Eastern. It is now wrought successfully, and has been introduced into market. It is designated by the name of he "Gibraltar Oil Stone."

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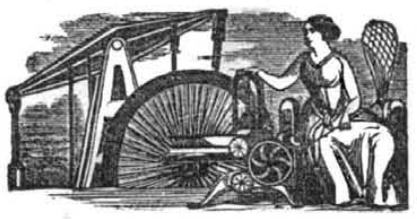


New Inventions.

Improvement in Working the Valves of a Locomotive.

Mr. Simeon Goodfellow, machinist, of Ida Mills, Troy, N. Y. has made some very ingenious improvements in the manner of working the valves of a locomotive, for which he has taken measures to secure a patent. The arrangement is very peculiar. A longitudinal shaft runs along directly under the boiler and on it is a drum with two eccentric grooves in it. This drum revolves with the longitudinal shaft and into the eccentric grooves which run around the periphery, are fitted two small heads of the valve rods. These valve rods are of peculiar construction. They are fixed on pivots to a plate secured below around the shaft spoken of and project up on a line to work the slides of the valves, in the form of bent knees. When the longitudinal shaft revolves, which is done by a cog wheel on the driving wheel shaft meshing into another connected to the shaft spoken of; the valve rods receive a reciprocating motion according to the forms of the grooves in the drum. These grooves are formed to operate the valves like cams, and by small guide rods below they can be altered to cut off at any point desired. The improvement embraces the principles of working the valves from a common centre below the boiler, giving them the rapid operation of the cam, and the benefit of employing the cut off or not at any desired point. It is true that it is more complex than the common simple eccentric, but experience may demonstrate it to have advantages to cover far more than the loss of simplicity.

A Petrified Oil Paint.

Messrs. Quarterman & Son, No. 114 John st. this city, have made a very valuable discovery of a petrified oil paint, which is fireproof and well adapted for roofs, walls, cisterns and many other purposes. We have a block of wood before us on which a layer of this paint is laid which possesses all the hardness of light drab freestone, and has the same beautiful appearance. It can be made to be applied either with brush or trowel to cover a brick wall, an under coat of mortar, or a wooden partition. The receipt which Messrs. Quarterman give us, is in the proportions, 1 lb. of Quarterman's drier, 1 lb. of white lead, 2½ lbs. of clean sand, the whole mixed with boiled linseed oil. It can mix with various colors and for a plaster coating, it will cost about 50 cents per square yard. Every person can thus make it up to suit himself, and use it in the state most suitable.

Improvement in Steamboat Flues.

The Cincinnati papers say that Mr. Josiah De Crews of that place has invented "what is called a patent draft, for steamers, that is placed in the flues so as to cause more oxygen of the air to burn, creates a stronger draft, makes more heat, distributes the white flame, and in short, makes two-thirds more steam of the same quantity of fuel than has been done heretofore."

[The invention may be a first rate one, but that it saves two-thirds of the fuel is news, which we would rather see with our eyes than hear tell of with our ears.]

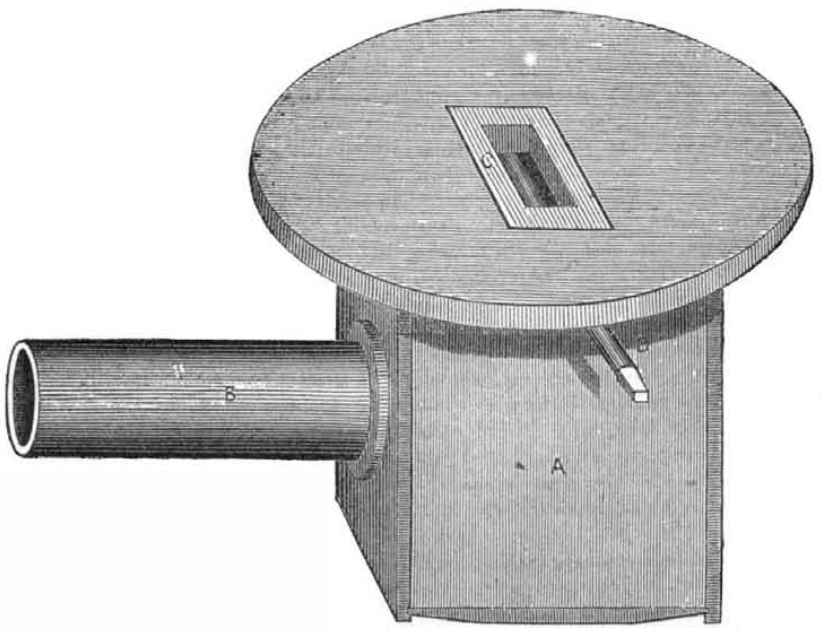
The Fog Bell.

The Boston Journal states that a bell to be rung in foggy weather has been exhibitng in that city, as designed to be located near light houses and rung during the fog by means of machinery. The ringing from what we can learn (it being somewhat vaguely described) is performed by a weight operating the striking parts—like an escapement, we suppose. This is somewhat more reasonable than accounts which we have seen of this fog bell before, which stated that "it was operated by the fog." The inventor is a Mr. Daniel Jones, of St. John, N. B.

CAMP'S IMPROVEMENT IN TWERES FOR FORGES.

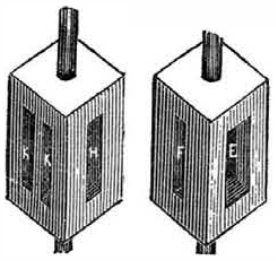
We here peesent three views of Mr. Samuel C. Camp's improvement in Tweres. Fig. 1 is a perspective view of the whole Twere, and fig. 2, are views of the different sides of the revolving grate to admit the air to the forge or cupola. The management of the Twere is a very particular business. It requires very great care and experience. Every improvement, therefore, however simple, is very valuable.

Figure 1.



This Twere combines the pre-eminent qualities of fire regulator and fuel agitator, breaking off the scales that may be formed better than any other Twere with which we are acquainted. A, is a suitable air box. B, is the tube connected to the blower or bellows in the usual way, and C, is the opening in the hearth plate above, into which the revolving grate fits exactly. D, is the shaft to operate and turn the revolving grate. Figs. 2 and 3 exhibit this grate. It is of a rectangular square form, fitting snugly into the opening of the hearth plate. It is hollow and is pierced with different sized openings K K, H, and F E, showing the openings on the four sides.—

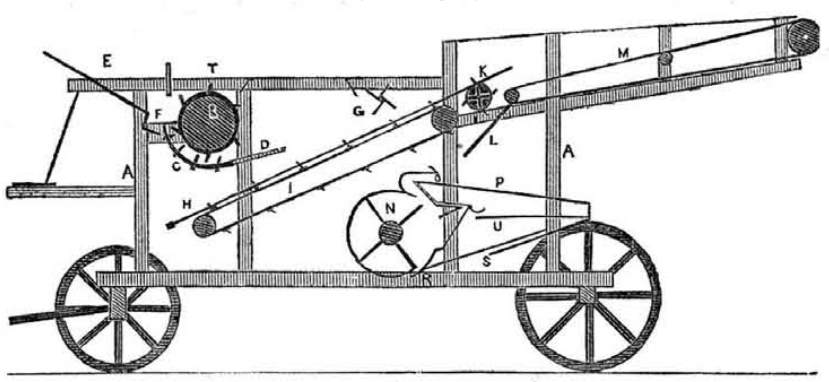
Fig. 2.



The openings regulate the supply of air, and the bars between the spaces prevent pieces of coal from falling down into the body of the grate. By the form of this revolving grate, it will be observable, that air can be admitted in greater or less quantities as may be desired, in a most beautiful manner, for by turning round the grate till its edge becomes the apex, air will be admitted from both sides, while by turning the grate till its plane coincides with the face of the hearth plate, no more air will be admitted than the size of the opening or openings in one side will allow.—The edges too serve to break off the scales of metal that may be formed, being better for that purpose than a revolving perforated ball. Mr. Camp makes the hearth plate concave whereas in other Tweres it is convex. Therefore as the scale which forms on the top of the Twere is caused by impurities of the coal, sand, &c. melting and running over the surface, this red hot liquid spreads over a convex surface outwardly from the centre of heat and thereby spreading the fire beyond all necessary bounds and increasing the consumption of coal unnecessarily, whereas with a concave top the red hot liquid flows to the centre and readily passes through the grate bars out of the way or is removed, if sufficiantly chilled, by a revolution of the grate. The fire in a forge with the concave top will always form an inverted cone, whereas with a convex surface the red hot liquid flowing outwardly instead of to the centre communicates the fire to the adjacent coal and will form almost a perfect cylinder in a short time.

Mr. Camp resides at the Grove Works Car Factory, Hartford, Conn., and has taken measures to secure a patent.

WOODBURY'S IMPROVED GRAIN SEPARATOR AND THRESHER.



This engraving is a vertical longitudinal section and represents the improved Grain Separator of Mr. Daniel Woodbury, now of Rochester, N. Y. formerly of Vermont, who is the inventor of a valuable Horse Power and many other inventions. This machine has been recently secured to Mr. Woodbury by patent, and the following explanation will explain its construction and operation.

A, is the frame. B, the cylinder to thresh the grain. C, the concave bed of thresher. D, is the grate frame to prevent the grain, &c. from injuring the web. E, is the feed board. F, box to receive stones, &c. that may be in the straw to keep them from passing into the thresher. G, are revolving beaters. H, a number of light wooden rods inserted at their lower ends in a bar that crosses the frame K, in the corners of which are rollers to prevent the wear of the rods. Between the rollers are bars with teeth which agitate the straw and pass it from the ends of the rods to the straw carrier. I, is a broad web revolving on two small rollers. There are bars across the web fixed to it, and placed at intervals from one another. These cross bars have projecting vertical teeth or pins in them corresponding with the spaces between the rods H, spoken of above. These teeth carry forward the straw above the rods, while the grain falling through between the rods is carried forward by the web below and discharged into the fanning mill by the slanting board L. M, is a broad band made by connecting together at their ends a series of light rods, the upper side of which carries forward the straw while the under side brings back the grain which may have fallen through upon the floor below. N, is a blower. O, a curved aperture through which part of the wind is discharged above the shoe P. O, is a sieve. The good grain is discharged at R, the light grain at S, which is supplied with screws to separate the foul seed from the grain.

Mr. D. Woodbury has erected extensive works at Rochester, and manufactures the machinery and furnishes to order the above Separator in combination with his Horse Power, and warrants them to be greatly superior to any in use. These Separators have been introduced into five different States and have in all cases given general satisfaction.

Improvement in the Manufactnre of Metallic Compounds.

A patent has lately been secured in England, by Mr. John Davie Morris Stirling, of Black Grange, North Britain, for new metallic compounds, the specification of which we condense from our worthy exchange, Barlow & Payne's Patent Journal, as being of interest to many of our readers who are engaged in metallurgy.

1st. He produces a metal equal to the refined iron, by taking about one twentieth of scrap malleable iron and placing it in the hollows of the pig metal beds in the smelting, in which case the pig metal envelopes the wrought iron, which loses its character of tenacity and becomes more brittle and steely.—After this the whole mass is thoroughly puddled in the puddling furnace, where it is found he says, to be the best refined iron. Scrap iron has been mixed with cast iron before, but this smelting of the mass in the puddling furnace, is an improvement.

2d. Another plan is to introduce the scrap malleable iron into the puddling furnace, and then running in the molten cast iron from the smelting furnace, before the scrap iron was thoroughly smelted. This must be carefully done. The smelted iron has been run direct before, into the puddling furnace, but not mixed with the scrap in this manner. The inventor states, that a mixture of one fifth of scrap with rich pig iron produces an article of iron of great ductility and fibrousness, which may readily be worked under the hammer, in the squeezer, or between the rolls. For tyres of wheels and the surfaces of rails, he finds that scrap steel mixed with the cast iron is a great improvement.

By mixing one hundredth part of block tin with the cast and scrap iron in the puddling furnace, he produces a metal of a smooth exterior very hard, but which can be wrought under the hammer or between the rolls.

The addition of zinc or its oxides in the puddling furnace produces a metal of a bright color, with a clean surface, and it is very ductile and fibrous. He prefers to use calamine (a native carbonate of zinc) in this combination. He also finds that by mixing about a two hundredth part of copper, a beautiful compound is the result. [This is just an addition of brass in the scrap malleable and the cast iron in the puddling furnace.]

To make a very hard and steely character of iron, well adapted for the tyres of wheels and rails, he introduces some of the black oxide of manganese into the puddling furnace incorporating it thoroughly with the metal just before it is taken out, then rolled into bars.

Solid Milk.

A Mr. Felix Louis of Southwark, England, has lately taken out a patent in England for preserving cows milk, goats milk, &c., by converting it into solid cakes which are soluble in warm water, and which may be kept for a long time without losing their original sweetness. The process consists in using some loaf sugar, agitating the milk, evaporating it by heat and then pressing it into cakes while soft and evaporating them to dryness after being moulded.

Michigan used 7,800 reams of paper last year.

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NEW YORK, MAY 19, 1849.

The New Commissioner of Patents.

Mr. Thomas Ewbanks of this city, has been appointed Commissioner of Patents in place of the Hon. Edmund Burke, removed. This appointment will give general satisfaction to all our inventors. Mr. Ewbanks is an inventor, a practical mechanic, a man of great scientific attainments, and author of that pre-eminent work, " Ewbanks Hydraulics." This work together with many other scientific papers has given him a good and great reputation both at home and abroad. He is a man of unsullied character, modest and generous, but firm and just also. No better appointment could be made. Mr. Burke was a good Commissioner of Patents, and we suppose that he was removed because he was a keen partisan. Mr. Ewbanks is not a hot partisan, but a good quiet citizen, and this qualification is a good recommendation to inventors. What do they care about parties? Our inventors want a man who will compile statistics on the improvements in the Arts, not party statistics. Agricultural statistics, and statistics on public policy, are excellent, but they should be compiled by boards for that purpose. The Patent Office is supported and sustained by the money paid in by inventors to the Treasury, and surely no other class has a right to the labors of those officers, who are paid and supported by the funds paid in by inventors. We contend, and always have contended, for the rights of inventors, but their rights have been overlooked always for the benefit of others. The Patent Department was instituted for the purpose of encouraging improvements in the " Useful Arts." Now, although this is an undeniable fact, we well know, and have spoken of it frequently, that the improvers, the inventors, have received far less attention than some others who never paid a single dime for the advancement of the Arts. Huge documents on agriculture have been issued year after year from the Patent Office, while the epitome of improvements in the Arts has presented a miserable appearance in comparison with their buttermilk neighbors, for whom the inventors did all the churning, and made the churn too. We hope after this that all the Patent Office Reports will embrace matters only relevent to patents and improvements in the arts, with legal information in connexion, and that a copy of every Report for the year be sent to each man who secured a patent during the year.

In penning these lines we write above partisan feelings—for we are on the side of justice with the good will, we know, of inventors, who are of every party in politics, and who care for justice alone in this department above Whig or Democratic feelings. Mr. Ewbanks we know will give his influence and the best wishes of his heart to secure full justice to inventors and to extend a more universal and better knowledge of American Science and Art.

Mr. Burke, as Commissioner of Patents, earned the fame of being a prompt and able officer. Whatever faults one party may have with another, is no business of ours. We speak of him as a high officer of the U. S. Government, who performed his duties with honor to himself and his country, and it is a source of pleasure to know that his mantle has fallen upon worthy shoulders.

Steam Boiler Explosions.

We are indebted to the Hon. E. Burke, Ex Commissioner of Patents, for his valuable Report on the subject of Steam Boiler Explosions. By it we learn that it is the opinion of Mr. Cist, that much of the boiler iron of the West is made from inferior ore, deficient in fibre and tenacity, and this is held to be one cause of explosions. Excessive pressure is laid down as another cause, unduly heated metal another, and carelessness or ignorance, of engineers another. Thus four causes are laid down as sources of boiler explosions.—The employment of cast iron in any part of the boiler is justly condemned. No less than 15 cases of explosion are reported to have been caused by the boilers being made of defective materials

The grand desideratum is, " the best way to prevent steam boilers from exploding."—Every person knows, that they will not explode if there is plenty of water in the boiler, and not too great a pressure on the safety valve. To keep up a good supply of water then is the main point, and this embraces the necessity of having an apparatus to give a sensible waaning when the water falls below the safety line. These apparatus are ranged into four classes.

1st. The " common safety guage" of low pressure boilers and the manometer for high pressure boilers, likewise the glass water guage and some others that depend on small valves opening to sound an alarm, such as a float, to operate a whistle when the water falls below a certain point, also the common guage cocks.

2d. Fusible plugs, the safety guard of Mr. Evans, and the expansion guard of Mr. Wright.

3d. The safety apparatus of Mr. Raule, the hydrostatic valve of Mr. Duff, and the interior safety valve of Mr. Easton.

4th. The ordinary force pump, the auxillary pumping engine (the Doctor) and the self acting pumping engine of Mr. Barnum, as described in No. 3, vol. 2 Scientific American.

The disc safety valve is preferred to the conical safety valve. A boiler may be burst by a force below its ordinary working pressure if the tenacity of the metal has been diminished by heat, in such a case the ordinary safety valve is of no use. The fusible alloy plugs are stated not to be reliable, as they give no evidence of the determination of the boiler by age and use, as they are subject both to the pressure and the temperature. Mr. Evans' safety valve, is stated to remove this difficulty, by inserting a tube through the top of the boiler with its bottom resting on one of the flues, and having a small quantity of fusible alloy placed in the bottom of this tube connected to a spindle which is allowed to move round only when the alloy is in a molten state, which by being connected with a cord to a weight, drops it on a support and throws open the safety valve. This apparatus is highly extolled and recommended in the Report.

Barnum's self acting pump is highly extolled as it was in the Report presented to Congress on the same subject in 1845. Mr. Easton's apparatus is also highly spoken of.

Mr. Burke says that it is his deliberate opinion that the best remedy for all the evils complained of, would be to make a strong appeal to the interests of boat masters and proprietors, by giving a remedy, where explosions result in injury to persons or property, to the individuals wounded, or the nearest relative or friends of the killed, in the shape of heavy damages recoverable by action at law. He recommends both personal and boat property of boat owners be held as a *lien*, to respond to the damages of a plaintiff, and that all the members of the corporate body owning a boat, be held liable jointly and individually for damages.

High Pressure and Low Pressure Engines.

The high pressure engine as constructed with the condensing engine has the loss of the vacuum, for there is a diminution of its power by the counteracting pressure of the atmosphere on the educting side of the piston, but this counteracting pressure must be obviously less in proportion according to the high pressure of the steam. Bourne believes that a high pressure engine working at from 70 to 90 lbs. on the square inch, as in the case of locomotives, has about the same efficiency from a given quantity of water raised into steam as the condensing engine. For example, if the pressure of the steam in a high pressure engine be 120 lbs. (105 above the atmospherical resistance will only be one eight of the power. If the pressure of a condensing engine be 16 lbs. on the square inch (1 pound above the atmosphere) and the vacuum be only worth 13 lbs. this will be a loss of one eighth in the condensing engine; therefore a high pressure engine working with steam at 120 pounds pressure has the same proportional atmospheric resistance as a condensing engine working at 16 pounds pressure with the oss of 2 pounds in the vacuum by the attenuated vapor therein. Steam at a pressure of 8 atmospheres, works with the same proportional resistance as the condensing engine working with steam at one pound above the atmospheric pressure. What then is the relative value between a high pressure and a low pressure engine? On this point there are different opinions among practical engineers.—Some contend for and some against the high pressure engine. The condensing engine is more expensive, more complex, occupies more room, and is much heavier than the high pressure. The high pressure is more dangerous, it has the loss of the vacuum and needs more lubricating material.

The advantages claimed for the high pressure engine, are lightness, cheapness, compactness, simplicity, and no condensing water required.

The condensing engine has the advantage of the vacuum, less lubricating material and far less of wear and tear from pressure. For boats navigating shallow rivers, the high pressure engine is best adapted, and for moveable engines such as locomotives, it is also to be preferred. For lifting weights, such as operating cranes and windlasses, and for working hydraulic presses, where a variable power is required, it is also to be preferred. But for a stationary engine many prefer a condensing one, and no doubt they are correct when they use one of such power as will do its work with ease, using the steam expansively. Some who have tried both kinds believe that one good condensing stationary or marine engine, can be worked at less expense and will last longer than two high pressure engines.

For the Scientific American.

To the Fire Department of New York.

The streams of water thrown direct from the ground or tops of engines into the windows of a burning building, are oftentimes almost ineffectual from the great height of the windows, the water having to be thrown almost directly upwards, and therefore but a small portion being of much service, and ladders are not always of sufficient length to reach the windows.

Now I propose in a measure to remedy this as follows :—

Take four ladders of equal length, two of which raise with their tops against each other (which by a simple contrivance can be made to clasp) then place the others one each side, which will act as braces; thus forming a firm and high stack from the top of which four streams can be thrown into the windows of the building opposite which they may be placed.

This proposition I think would be worth your trial, and the expense you see trifling.

My plan for securing the ladders I can give if you think necessary. H. M.

New York, May 1st, 1849.

[Will H. M. give us his plan for securing the ladders and bracing them perfectly. We would not like to trust ourselves with a pipe on the top of the *second* ladder, when only braced by its tall fellow; that is, as the ladders in use are constructed.

Daniel's Planing Machine.

Messrs. Richard Ball and Thomas H. Rice, of Worcester, Mass., who purchased of Mr. Thomas E. Daniels the inventor, the right of his planing machine, are now successors and successful manufacturers of his machines, to which they have added some very valuable improvements, with a true Yankee spirit of inventiveness.

These machines have now a justly deserved reputation for squaring out stuff for machinery and all kinds of mill work, floor and other kinds of boards, and stuff for bedsteads, tables, bureaus, and for pannelling, and for hollowing out water wheel linings. They are also capable of planing iron by being made strong enough.

These machines are delivered in Worcester, (always on hand, ready made to fill orders) at any moment. The prices are very reasonable. One 7 feet long, to plane 30 inches wide with common gearing costs from $200 to $250.

Travellers can now go from this city to Cleveland, Ohio, in two days.

Patent Case.—Iron Blast.

At Trenton, N. J., before Judge Grier of Philadelphia, a case was tried for the infringment of a patent, C. C. Alger, of Stockbridge, Mass. vs. J. E. Edsell, of Hamburg, N. J.—The patent was for an improvement in the arrangement of the blast pipes leading from the heating oven or cylinder to the tweres, which were placed inside of the stack between the lining and the stone work by Mr. Alger, instead of bringing them down on the outside as in the old way. This arrangement was adopted by Mr. Esdell, with the addition of a large box of cast iron behind the lining of the boshes, through which the air also passed to the tweres. This was used 15 months before the suit was brought. The effect of the improvement was held to be the keeping of the supply blast at an equable temperament.

The defendant contended that the additional box behind the boshes altered the nature of the invention—that Alger's produced an inferior article of iron than was produced before its introduction, with a greater consumption of stock. This defence was held to be of no consequence as affecting the matter of infringment, but only as one of degree for the amount of damages. A verdict was given for the plaintiff of $350.

This is a case which goes far to show that our Courts and Juries are willing to sustain and protect inventors in some rights, more freely than those rights are sometimes conceded to them at Washington.

American Cast Steel.

It is not generally known that the important article of cast steel—for the supplies of which we are dependent on foreign countries, principally England—is now produced in this country from American iron, and that of a quality much superior to that imported. For this important advancement towards a state of entire independence of other countries, we are indebted to the energy and enterprize of the Adirondac Steel Manufacturing Company, and to the ingenuity and science of their superintendent, Mr. Joseph Dixon. Their manufactory is located at Jersey City, N. J., and the iron which they use for making the steel is manufactured by themselves, at their works situated on the western borders of the county of Essex, in the State of New York. The ore from which it is made is there found in inexhaustible quantity, and being in the heart of an extensive forest, which will furnish charcoal for a century, their works might be so extended as to meet the wants of the Union.—They are now prepared, we understand, to furnish steel of all sizes and forms, and at prices below that of the best qualities of imported steel.

Mr. Dixon is a man of uncommon ingenuity, and scientific attainments. We have been informed that the English steel imported now from some cause or other, is not so good as it used to be some years ago. Our informant is a gentlemen who is a large tool manufacturer and is able to judge.

The Lowell Machine shop has declared a semi-annual dividend of 10 per cent. This is doing good business and shows that it must be well managed.

Banvard has bean invited to visit Windsor Castle with his Panorama, where the Queen and royal family will examine it. This is a substantial compliment to American genius and enterprise, in old England.

We thank our friends of the Wellsburg Herald for their generous notice and also for informing us that they published the prospectus of the Scientific American. We shall certainly forward the paper regularly hereafter and regret that we overlooked them, which was certainly inadvertance. We cannot forward all the back numbers.

Our London Patrons.

We are happy in being able to inform our English patrons that such arrangements have been completed with the London Patent Office that the Scientific American may hereafter be found there. Messrs. Barlow & Payne are agents at 89 Chancery Lane, and will receive remittances on account of the Scientific American from those who may desire to subscribe.

Terms—3 dollars per year and postage paid out of the United States.

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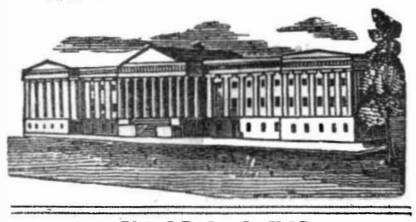

LIST OF PATENTS.

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending May 8, 1849.

To Prouty & Whitman of Philadelphia, Pa. for improvement in Corn Shellers. Patented May 8, 1849.

To Thomas Lockett, of Warren Co., Geo. for improvement in Sausage Machines. Patented May 8, 1849.

To A. J. Goodman, of Duval Co. Florida, for improvement in Broom Brushes. Patented May 8, 1849.

To Lyman Baker, of Newbury, N. H. for improvement in Spring Rake Teeth. Patented May 8, 1849.

To L. A Hall, of Newark, N. J. for improvement in Trusses. Patented May 8, 1849.

To Munson & Pratt, of Fremont, Ills. for improvement in Washing Machines. Patented May 8, 1849.

To L. B. Woods, of Bradford, N. H. for improved self acting Railroad Switch. Patented May 8, 1849.

To Chapman Warner of Louisville, Ky. for improved Lugs & Links for connecting pipes. Patented May 8, 1849.

To W. C. Hicks, of Rutland, Vt. for method of operating railway switches. Patented May 8, 1849.

To John Hopkins, of Brownsville, Pa., for improvement in brewing and preserving alcoholic drinks. Patented May 8, 1849.

To Wm. & W. H. Lewis, New York City, for improvement in Daguerreotype apparatus for gilding plates. Patented May 8, 1849.

To Lemuel Hedge, of New York City, for improvement in Saw Mills. Patented May 8, 1849.

To F. M. W. Webster, of Newport, Ky. for Improvement in Bedsteads for Invalids and others. Patented May 8, 1849.

To Wm. Watson, of Chicago, Ills. for improvement in destroying weevil in grain. Patented May 8, 1849.

To Geo. H. Dodge, of Attleborough, Mass. for improvement in apparatus for Spooling yarn. Patented May 8, 1849.

To Rufus Powers, of Prescott, Mass. for improvement in machinery for working timber into irregular forms. Patented May 8, 1849.

To J. S. Conant, of Dracut, Mass., for improvement in Sewing Machines. Patented May 8, 1849.

To D. L. Weatherhead, of Providence, R. I. for improved method of constructing & operating the header in Belt machines. Patented May 8, 1849.

To John Bachelder, of Boston, Mass. for improvement in Sewing Machines. Patented May 8, 1849.

To T. G. Bucklin of West Troy, N. Y. for improvement in preparing metallic patterns for casting. Patented May 8, 1849.

To Martin Guild, of Boston, Mass, for improvement in Machinery for laying ropes. Patented May 8, 1849.

To M. H. Ford, of Boston, Mass. for improvement in Annunciators for Railway Carriages. Patented May 8, 1849.

To Harvey Law, of Wilmington, N. C. for improvement in Machinery for dressing Staves. Patented May 8, 1849.

To A. D. Boynton, of Haverhill, Mass. for improvement in Machinery for cutting soles of boots and shoes. Patented May 8, 1849.

To William Montgomery of Roxbury, Mass. for improvement in Tarring Rope Yarns. Patented May 8, 1849.

To Richard Coad, of Kensington, England, for improvement in the combustion of Fuel. Patented May 8, 1849.

DESIGN.

To Abram Haney, of Troy, N. Y. for Design for Stoves. Patented May 8, 1849.

A pail, bucket and barrel factory is about to be started at Augusta, Ga. by Messrs. Glendinning & Lockhart. In connection with the wooden ware, machinery will be erected for cutting and polishing marble.

Blanchard's Patent.

(*Concluded.*)

Now when the cutters are acting with this alternate or reciprocating motion, they can scarcely be considered as moving on a cutter wheel, implying, as this does, the idea of continuous rotation. The abstract principle, therefore, that shall include both forms of structure, cannot recognize the cutter wheel, strictly speaking, as an element of the combination, but rather a cutter, or series of cutters, deriving motion from a circle, and acting in a circular arc.

If this were the correct definition of Mr. Blanchard's principle, the difference between the two machines would be resolved very easily. One, the patented, applies the revolving power immediately to its work, in the most simple, convenient, economical, and effective mode;—the other, the defendant's, interposes between the revolving power and the work an additional member, that serves no purpose whatever, unless to avoid identity with the patented machine.

The patent law would give but an illusory protection to the meritorious inventor, if it respected devices like this. It requires of a patentee, that he shall disclose in his specification the most beneficial mode of applying his principle that is known to him. (Neilson's patent, *Webster Ca.* 337.) But it does not require of him to go further, and point out all the possible contrivances by which the machine that illustrates his principle can be rendered less beneficial or less perfect. The more fully matured his discovery, the more complete his machine in all its parts, the more signally and immediatety profitable to the community,—the greater will be the number of the defects it has avoided or provided for, and the greater of course the number of changes for the worse that may be grafted upon it by a forward ingenuity. For surely ingenuity may be so styled, when it toils with inverted energies, not to improve or advance, but to devise something less useful and more costly than that which was known before.

But, in truth, the principle of Mr. Blanchard's invention calls for a less restricted definition than that which I have for the moment assumed. Strike out from this specification all the details of structure, or look thro' them into the inventive idea, the esssential principle that resides within, and what do we find? A tracer, so arranged as to pass in a spiral or helix line over the surface of a model,—while the rough material revolves in a similar line under a cutter, guided by the tracer, but acting with independent rapid motion,—the combination of these for a declared purpose: this is the principle of the Blanchard patent. All the rest is detail, properly introduced into the specification, as exhibiting "the most beneficial mode of applying the principle," but essentially forming no part of it.

Now although it be true, that, technically speaking, an inventor cannot claim a patent for the principle he has discovered, yet it is equally true that, if he has embodied it in any clear, definite, and distinct form, others will not be permitted to take that principle and embody it in some other form merely copied from his; "and thus," as was well argued in the case I have cited, "you may attain a result which is practically equivalent to the patenting of a principle," for when you have put your invention into shape, no person will be allowed to come in and steal the spirit of your invention, by putting it into some other shape, which, though different, is imitated from your's.

The defendant in this case has mistaken his legal rights, and the sooner he is advised of his error, the better for him and for the public. He is obviously possessed of considerable mechanical ingenuity, which, if applied in a different direction, may advance his own interests, while contributing incidentally to the interests of art. But he has confounded the details of Mr. Blanchard's machine with its principle, and in seeking to escape from the operation of the patent, he has violated the law by which it is guarded.

It is possible that he may have been misled by the language of the charge, when his case was before me on the law side of the court. Abstract propositions are liable to inaccuracy, when elicited in the haste of a trial at bar, and however accurate, they are not suited to the purpose of imparting instruction to a jury. I prefer, therefore, generally to employ illustrations, derived from the case itself, to convey the legal principle which should rule it rather than to announce the law in general and abstract terms. It is enough for me if I can succeed in teaching all that belongs to the circumstances and the time.

This consideration, however, of the possibility of my having been misunderstood, will have its influence with me in the future stages of this proceeding; and the attachment which I feel it my duty to award will be set aside on payment of costs, upon my receiving an assurance from the defendant that he will desist from violating the complainant's patent any further.

Nova Scotia Mines.—Cast Steel by Simple Fusion Direct from the Ore.

Messrs Munn & Co.

On a recent occasion you were pleased to make favorable mention of the specular iron of Londonderry, Nova Scotia, in your valuable paper. A company is now formed in Halifax comprising among its Directors the first men of that city with every prospect of success, notwithstanding the depressed state of the iron trade generally, in Europe as well as America.

The remarkable character of this ore is, that from its extreme purity, (containing nothing but oxygen) it is capable of being manufactured into iron and steel *direct* from the ore, thus reducing the cost of producing these commodities more than one half.

Mr. Robert Mushet of Coleford, England, has tested the Londonderry ores on a manufacturing scale. I copy from the London "Mining Journal" of the 17th of June 1848, a statement published by him showing what *cast steel* of the best quality can be produced by carrying the ore to England, and where charcoal made from oak cost about £4 per ton. Mr. Mushet's calculations were made upon this data. Every ton of cast steel will require about 6 cwts. of charcoal. I presume that charcoal of equal quality can be obtained in New York for one half the cost in England.

I believe that your hard coal with a soft blast from fanners would answer remarkably well for smelting in the crucible and with a corresponding saving as compared with coke. Mr. Mushet's estimate is as follows.

2 tons of ore at 60s., including freight to England, : : : :	£6 0 0 st.
Preparation of the ore and labor 30s. per ton, : :	3 0 0
Cast steel pots per ton, :	1 15 0
Coke 4 tons at 14s., per ton,	2 16 0
Repairs of furnaces, waste &c.,	2 8 0
Drawing down into inch square,	4 0 0
Waste in drawing. : :	12 0
Cost of one ton of cast steel,	£20 11 0

"As this steel would be of the best quality, I am warranted in assuming, that it will sell readily at a price which would realize £20 net profit per ton of bars. Without any establishment in Nova Scotia, beyond that required to raise and ship the ore to England from their ores, or 2500 tons annually, the sale of which would return them a nett profit exceeding £50,000 per annum."

Now 1-5 of this capital or $15,000 would be quite ample to cover the expense of fitting up of an establishment in the vicinity of New York, near a Shipping Port or a Railroad station, where a suitable site might be secured for, I presume a few hundred dollars, to make 20 tons of cast steel weekly, and the number of furnaces might be multiplied at pleasure to exceed, if necessary, Mr. Mushet's estimate of 50 tons weekly.

The Converting furnace for deoxydizing the ore might be made sufficiently large at very little more expense to prepare the ore for any given number of smelting furnaces. A steam engine of ten horse power high pressure, would have ample power to grind the ore and blow the furnaces, another of 6 horse power, would work the tilt hammer and blow the forge to heat the ingots.

The object of this communication is to bring the subject of Steel Making in New York, under the notice of Capitalists of the City,—and if one or more individuals (not exceeding four) will raise the necessary capital say $16,000, the subscriber will furnish $4000 worth of ore and fire clay at a reduced price to that calculated to deliver the ore in England, making together $20,000, and will undertake to furnish the Company delivered at New York such quantities of ore and clay, for any number of years as they may contract for.

Being in England and Scotland last year arrangements are made with parties to come to America to conduct a work of this kind if the capital could be raised, so that there will be no difficulty in obtaining proper persons who are known to be competent to superintend such an undertaking.

Specimens of the ore and fire clay, may be seen at Thomas L. De Wolf's 108 Broad St., as also samples of steel produced from this ore as already stated. Also a sample of malleable iron, made direct from the ore in a puddling furnace, on a manufacturing scale at the "Bridge Water" Iron Works on Tuesday last.

Your Obedient Servant,

JOHN ROSS.

Parties wishing to embark in this lucrative manufacture are referred to Thomas L. De Wolf 108 Broad Street. If by letter post paid' or to "Crowell Brooks & Company, Commerce, Wharf Boston." where similar specimens and samples may be seen and further information obtained.

Truro, May, 1849.

[Specimens of this ore may be seen at this Office and we have in our possession some strong vouchers of the value of these ores, in extracts from the London Mining Journal of June 3d, 1848.

A Royal Siamese Machinst.

The Singapore Free Press of Oct. 19, 1848, publishes the following communication from Bangkok, Siam, describing the proficiency attained by a native prince in mechanical art:

Some time since, it was intimated that his Royal Highness, Prince T. N. Chau-Fa-Rhromakhun Isaret Rangsan, had commenced the construction of a small steam-engine. This, under the most indefatigable and preserving exertions on his part, has at length been completed, and the Siamese can now boast of having running on the river Menam, a steamboat every portion of which has been made and manufactured there, and entirely by native artificers. She is 26½ feet long, 3 feet 10½ inches broad; the engine being 2 horse power. This little phenomena has made several trips up and down the river, his Royal Highness the Prince generally acting steersman himself in full view of thousands of astonished and admiring spectators, who crowded the banks of the river on each occasion. The Prince is naturally enough very proud of his steamer, and some few days since, passed up and down in front of the palace with her before His Majesty the King of Siam, who was graciously pleased to pass the highest encomiums on his ingenuity, made him a munificent present, and honored him with his commands to have another steam-vessel constructed, sufficiently large to be capable of proceeding to Singapore, which his Highness has undertaken to accomplish. From not having copper or iron here of sufficient thickness, the boiler has been constructed in such a manner as to add very considerably to its weight, and in consequence detracting much from the speed of the boat. His Highness expects, however to be able to rectify this in some measure—to effect which, he has commenced building one on quite a different model, more buoyant than the present one, and with larger paddle wheels, and has sent to Singapore to have copper sufficiently thick for new boilers brought up.

The workmanship of even the most minute part of the engine is truly admirable, and reflects the greatest credit on its royal constructor, who had every portion of it made under his own immediate superintendence and constant inspection, and by workmen all self-instructed, being His Highnesses' body servant and retinue.

The last resource to raise the wind is that of a shrewd but not scrupulous Yankee, who bought a bushel of shoe pegs, and on discovering they were made of rotten wood, sharpened the other end, and then sold them for oats!

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TO CORRESPONDENTS.

"S. W. of Miss."—Thank you for these favors. We have forwarded receipts and a quantity of No. 20.

"J. A H. E. of N. Y."—We are carefully preparing some articles on Latent Heat. We see nothing in your calculations to make us change the opinion we have expressed already. You will not perhaps be satisfied until you make some experiments on a small scale, but many have made great mistakes in considering specific to be latent heat.

"J. S. of N. Y."—Your plan is to use the steam over and over again The plan you propose appears to be correct, but in our opinion a much better mode is to use the steam at a good pressure and cut off at one third and then exhaust—you get the use of the vacuum and the benefit of the expanded steam. It takes fair experiments however in these things to determine their merits fairly.

"J. A. of Vicksburg, Miss."—Yours has just come to hand. We will give it attention. At present we would state that no person would believe unless he had examined the history of navigation thoroughly, that so many propellers, paddles, &c. had been invented.—One on the same prsnciple as yours we should think, has been patented by Mr. C. Keller.—It is not in public use.

"N. G. F. of N. H."—The model of your Car Coupling, reached us by Express The improvement over your previous model is very excellent, and we see nothing in the combination to prevent your success. Please forward the Caveat fee $20, and we will attend to the business at once.

"J. H. of Va."—The principle of your engine is not new. Several attempts have been made embracing the same general features. They will not answer, and you had better not spend time or money in experiments.

"J. T. M. of N. Y.—Turn to page 204, vol 3 Scientific American, and you will find an engraving of your principle.

"H. B. of Md."—You would probably require a boiler 3 feet long, and 1½ feet in diameter. We calculate the engine to be about 1½ horse power.

"E. S. G. of N. Y"—The great question is, to prove that Mr. Blanchard was not the original inventor. Several have tried and failed in the attempt. If you can do so, the laws will sustain you. This is the grand point at issue.

"A. S. of Ky."—By referring to advertisement you will find that vols. 1 and 2 are completely exhausted. The back numbers of the present volume have been forwarded to B. & H., except Nos. 1 and 2, which are all gone.

"A. B. W. of Mass." "J. A. P. of N Y." and "R. S. T. of Pa."—The Caveats of your inventions have been duly filed.

"A J. F. of Mass." Mrs. D. of N. Y." "S. C. C. and C. C. of Ct." "J. H. of O." "N B. C. of N. H." "R. S. T. of Pa." and "W. N. F. of R. I."—Your specifications have been forwarded to the Patent Office with fees.

"D. S. of N. Y."—The suggestions you advanced in regard to your specification are of no avail. What we have claimed for you covers all that you desire. The papers have been sent to Washington with fee.

"H. B. of Pa.—The model of your Stave Machine was shipped to Lanesboro last Tuesday by the N. Y. and E. Railroad.

"N. & W. O. of New Orleans."—Your order for the diagram of the Condensing Engine was filled and the parcel shipped on board the schr. "Ophelia," last Saturday, (May 12.)

"F. J. V. of Pa."—No person has a right to use it but B, if sold to him as an individual right by A. But all this will depend upon the contract made—it is a question of common law and must be judged by it—not by any section of the Patent laws, and a jury will decide the amount of damages (if any) in view of all the circumstances.

"A R. S. of Geo."—Yes; we still retain that beautiful English Sporting Gun, and if you desire it we will ship it to your address on the reception of $30. It is a gun which cost, and is worth a great deal more money, but as the advertisement which appears in the Scientific American of March 10 stated, we have no use for it, and had rather sell it for half its worth than to long retain it.

"E. C. of Mass"—You can retain the odd papers, and we will endeavor to supply you with missing numbers if you will inform us what ones you want at the end of this vol.

"L. B. of Ind."—Messrs. Berard & Mondon of this city, are publishers of Spanish books.

"W. W. of Md."—Your model has not come to hand yet.

"B. B. of N. Y."—The specification of your Railroad Brake has been long completed and we should like to be informed why you do not call and see about it.

"J. H. of O."—Your specifications and funds were duly received and the former has been forwarded to the Patent Office with a certificate of deposit for the amount of fee.—The assignment which you sent was correct and has been forwarded to be recorded.

"D. S. of Pa."—The results of your arrangement have been produced before. Your plan may be a different method of producing the same results; if so it forms the subject of a patent.

We have a lynx-eyed person on the track of a Mr. Van Vleck, who has been figuring quite extensively in this State soliciting subscribers for the Scientific American. It is our object to bring him to justice as speedily as possible. If we succeed in securing this consummate —— we shall pour the mighty belchings of our Vesuvius upon his head.

Hats, Hats.

Whoever wants a good hat should not forget our friend Knox, No. 128 Fulton st., below our office. As the head is the most honorable part of man, it should be adorned in the first of fashion with one of Knox's chapeaus.

Advertisements.

LONDON PUBLICATIONS.

THE undersigned have been appointed Sole Agents for the United States for the sale of the following celebrated works, edited and conducted by William Carpmael, Esq.

The London Repertory of Patent Inventions published in monthly numbers at 75 cents each.—January, February and March numbers received.

The London Law Report of Patent Cases, vol, 1, complete, 700 pages, with an index, bound, at $5.

The English Patent Laws, (bound) $1,25.

The Index of Repertory and List of Patents granted for 1815 to 1845, (bound) $4,50.

The public will understand that the above publications cannot be obtained at any other place in this Country, except ordered through the publishers of the Scientific American. Orders will be promptly supplied, and the Repertory furnished every month by the steamers to persons wishing it regular MUNN & CO 128 Fulton st. m19

TO CAPITALISTS.

WEST & THOMPSON'S PATENT "CLASP COUPLING JOINT."—The undersigned having accomplished the object of his mission to Europe in relation to this invention, is now ready to treat with capitalists for the sale of the American patent. As it is the determination to sell in "STATE RIGHTS," no application for town or county rights will be noticed. A party, however, purchasing a State right, may, should he think proper, grant town or county rights. Terms Low.

CLINTON G. GILROY,
(Tribune Buildings, New York.)

Sole Agent (under powers of Attorney from Hon. Horace Greeley, assignee of Patent) for the United States of America

The leading advantages of this extraordinary invention are now so well known to practical men as to render it unnecessary to enter into any details upon the subject.

"LONDON, Oct. 16, 1848.

"I have examined West & Thompson's 'CLASP COUPLING JOINT,' and am of opinion that the Joint is simple and effective, and will, I have no doubt, become largely used in this country.

"WILLIAM CARPMAEL."

"LONDON, March 10, 1849.

"It has the merit of being at once extremely simple and of manifest efficiency.

"JOSEPH CLINTON ROBERTSON."

"LONDON, March 10, 1849.

"This Invention has been examined by the most celebrated Engineers in the Kingdom, and pronounced to be the simplest and most effective joint for Steam, Gas, Water, and other fluids ever introduced.

BARLOW & PAYNE."

"LONDON, January 20, 1849.

"This Invention is much admired for its simplicity, ingenuity, and effective operation.

NEWTON & SON."

☞ All letters must be postpaid, and addressed to CLINTON G. GILROY, Tribune Buildings, New York. m19 1t*

TO PAINTERS, &c.

QUARTERMAN'S **Improved American Atomic Drier**, adapted to all kinds of Paints and Painters' colors. Sold wholesale and retail, at 114 John st New York.

m19 3m* QUARTERMAN & SON.

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YOUNG MEN will find it to their advantage to engage in the sale of valuable and popular Books, on useful and interesting subjects. Also, to canvas and obtain subscribers for a Monthly Journal, which should be in the hands of every working man in the nation. Such terms will be offered as to make it an inducement for all (not already profitably employed) to engage in this enterprise. For particulars, please address, post paid,

FOWLERS & WELLS,
m19 8t 129 and 131 Nassau st. New York.

Patent Agency.

☞ From our long acquaintance and experience in Patent Office business we have no hesitancy in asserting that we are better able to judge the merits of new inventions, and are better capable of advising upon all subjects pertaining to Patents than any other concern in the United States.

Any business connected with the Patent office may be done by letter through the Scientific American office with the same facility and certainty as though the inventor applied in person. Our prices too (another important consideration to inventors) are but about half as much as the charges of most agents as the amount of business which we do, and that in connection with the publication of the Scientific American renders to us superior advantage over all other agents.

Having been often complimented by those who have entrusted their business in our care, we here repeat what very many have said. "The best Patent Agency in the United States is at the Scientific American office"

All models, drawings or communications that are sent to the Scientific American office for inspection are deposited from the eyes of the public until the necessary application for securing the invention has been made.

The best of artists are constantly employed to make drawings from models and our corps of specification writers are composed of gentlemen formerly connected with the Patent office at Washington as Examiners.

All communications should be addressed to
MUNN & CO. Scientific American Office.
POST PAID. (d16) New York.

BLANCHARD'S MACHINE.

☞ MESSRS. EDITORS.—From an advertisement in your paper of John Kimball, offering for sale a machine recently patented, for turning Lasts, Spokes, &c it may be of interest to your numerous readers to know that Thomas Blanchard sometime since legally noted Mr. Kimball for infringement on Blanchard's right, and held him under bonds for damages. The case would have been tried ere this had the defendant been ready for trial. The plaintiff has been at all times ready, and it is expected the case will come up before Judge Woodbury in Boston before the close of this month, or early in June. A machine similarly constructed has been passed upon as a violation of Blanchard's right by Judge Nelson in the Connecticut Circuit. I have seen the Kimball machine in operation, and it has all the distinguishing features of Blanchard's machine for turning irregular forms. A. K. CARTER.
Newark, May 14 1849. m19 1t*

MINIFIE'S MECHANICAL DRAWING BOOK.

THIS is one of the most valuable works ever published, for Mechanics, desiring to learn the art of Drawing. The rules are all familiarly explained, and it is well illustrated with drawings, sections and elevations of buildings and machinery, an introduction to Isometrical Drawing, and an Essay on Linear Perspective and Shadows, 46 steel plates, containing over 200 diagrams. The work is bound in a beautiful and substantial manner. Price $3.

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a21 tf

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THE subscriber has just received letters patent for a Machine for making Lasts, Spokes, &c.—The principle of the machine is such that a large number of spokes may be made at the same time, with only one model. If the last or model be for a right or left foot pairs will be produced at the same time. The first and only machine after this patent has been in constant use about one year and a half, and makes the most perfect work that has ever been produced by a model (a sample of the work may be seen at this office.) A machine with 10 cutters will produce 5 pair of lasts or 10 spokes at one and the same time, and would require about the power of two horses, and would produce about 1000 spokes per day and 500 lasts. The subscriber will dispose of the whole patent or a single State. In the application for a patent the attention of the Commissioner of Patents was called to that of Thomas Blanchard to show in what way it was unlike his machine for turning lasts and spokes, that was granted in 1819 and extended in 1848. The subscriber is and has been prepared for a long time to have the question tested before the proper tribunal.

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Augusta, Maine, Oct. 28, 1848. o28 1y

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To Dress Satin.

Lay down the satin with its wrong side on a clean flat board. Then take a sponge and dip it into some gum water, or water in which there is dissolved a little white glue, and with this rub the satin with the grain or along with the selvage, and afterwards iron it on the wrong side on a soft table, taking care to iron the edges straight and leave no wrinkles. If the satin is merely wrinkled without being worn in the creases, this dressing will make it equal to new.

To Clean Silk.

This is a very particular job. Hard silks, such as lutestring, were never made to be wet, for when creases are made in hard silk, the twists of the threads are generally broken and this never can be rectified by dressing, dyeing or cleaning. This is the reason why redyed and re-dressed hard silks, have always a whitish, cottony surface. Soft silks, however, clean very well. The way to do this, is to dissolve some Castile soap and let it get perfectly cold, then take the silk and wash it in this taking care not to rub it so as the grain of the silk will be broken, but to rub a piece of hard soap on the grease spots, if there are any, and wash them by squeezing and gently rubbing the silk in the cold soap solution, which must be strong enough to feel slippery in the fingers. When the silk is thus carefully washed it is taken out of the soap and washed in clear cold water—giving it two or three clean waters at least. After this it should be run through a solution of milk warm water in which is dissolved a little alum, and then it should be wrung in a clean cotton cloth, as hard as possible, when it is then fit to be stretched on a frame, sponged over with a weak solution of gum, or white glue, and dried, taking care to stretch out all the wrinkles while the silk is wet, and let it dry in that state. The silk may be pinned down on a mattress, if the person has no frame, and left to dry, when all the wrinkles will he found to have disappeared. Green and blue colors are very apt to run in the drying and fade in the washing, they must therefore be carefully managed Striped silks that have a blue or green satin stripe and hard lutestring foundation cannot be cleaned but with great risk.—The way silks should be wrung, is to spread the silk in the cotton cloth, with the selvages parallel and roll the two together like one sheet of paper rolled up within the other, the cotton cloth being on the outside. This saves the silk from rubbing and creasing. The above may be fully trusted.

To Clean Kid Gloves.

First, see that your hands are clean, then put on your gloves and wash them as though you were washing your hands in a basin of turpentine, until quite clean—then hang them up in a warm place, or where there is a current of air, which will carry off the smell of the turpentine.

We cannot vouch for the genuineness of this receipt, but we have been informed that this is the way the French dyers clean their gloves, and some that have been cleaned in this city, we know smell confoundedly strong of turpentine. But one thing we know, if the turpentine is not properly refined, it will leave a dirty resinous surface behind it. We should suppose that to wash the gloves in a solution of strong cold soap, then in a solution of ammonia and cold water, and after this in cold water, finishing out in a solution of alum and water, would be by far the best plan to clean fine gloves, taking care to keep them stretched till they are perfectly dry. We have seen gloves cleaned handsomely just by fine soap, a strong solution, and the soap suffered to dry in the gloves.

The Austrian government has forbidden the wearing of red garments of any description in Vienna, even to a red scarf, &c. on the penalty of imprisonment.

Steam Engine Indicators.

This is the best and most complete Instrument that has been as yet invented to investigate the principal features of the Steam Engine. By it we are enabled to explain all the different operations the Steam undergoes in the cylinder, as well as a number of other matters equally interesting to the engineer; we can tell whether the steam enters the cylinder at the proper time, if too quick or too slow, and if it is the same pressure in the cylinder as it is in the boiler. If the steam pipes, openings, and valves are of sufficient area. If using a cut-off, and at what particular part of the stroke the steam will be cut off. If the expansion be correct and the amount of the same, together with the pressure of steam due to a certain expansion. The vacuum obtained, if equal or better, than that shown by the mercurial guage. If the steam and exhaust valves open at the proper time, if too quick or too slow. It also gives the correct pressure of steam and vacuum by which we are to calculate the power of an engine. It is in fact the only instrument which will enable us to tell whether the engine may be doing its duty and whether in good condition or not. Now the cards traced by the indicator will tell all this and much more of equal interest.

The two accompanying diagrams are intended to illustrate some of the main features which the indicator is calculated to display.

Fig. 1.

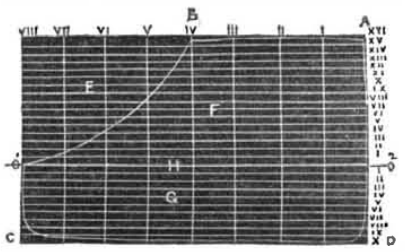


Fig. 1. Is the fac simile of the card traced by one of the engines of the U. S. Steamer "Michigan" on Lake Erie. A is the starting corner. B the point of cut-off. C the exhaust corner. D the lead corner. E the amount of expansion. F the steam expended. G the vacuum obtained, and H the atmospheric line. The same letters will answer for fig. 2.

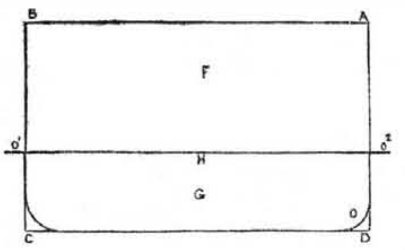
After the paper is put round the barrel or cylinder of the indicator, motion is given it from some part of the engine, and the pencil, before steam is let on, will mark the straight line H between O1 and O2, the length of which represents the stroke of the Piston. After the engine has made a few revolutions, with the Indicator barrel in motion, the cock, communicating with the piston of the indicator, is opened as the engine arrives at the centre, the pencil instantly flys up to the starting corner A, the height of which, will mark the pressure of steam in the cylinder; the scale on the indicator is graduated for tenths of an inch, each tenth indicating one inch of pressure in the cylinder, the pencil starting from A B, this line shows the steam is operating with its whole force; when the pencil has arrived at B the cut-off closes, the pencil will then commence falling, and will describe the curve from B to O1, showing the gradual diminution of the steam to the end of the stroke. When the stroke is completed the pencil will fall from O1 in the direction of C, and the vacuum holding it there will mark the line C D.

The figures 1 to 8, represent the stroke of the piston: this card shows the steam cut-off at 4 which is half the stroke of the engine, and the engine that traced it, cuts-off exactly at that point. The small parallelograms may be counted as the square inches of pressure, the space F as the strong steam and the space G, as the vacuum obtained.

If the steam does not enter the cylinder at the proper time, if too quick, the corner D will be cut away or rounded too much, if too slow there will be no rounding at the corner, but as at D, figure 2, the two lines will form a right angle, the proper rounding, or lead, is shown at O, fig. 2. The figures from 1 to 16 mark the actual pressure of steam in the cylinder, which will be found generally a few inches lower than that shown by the mercurial guage.

If the steam pipes, valves or openings be not of sufficient area, the line from A will be angling in the direction of O1. If not using a cut off, the line from A to B should be parallel with the line H, as in fig. 2d. If using steam expansively, this line should be parallel to H until the cut off closes, and then commence falling as from B to O1, figure 1.

Fig. 2.



The figures from 1 to 10, represent the number of inches of vacuum obtained, but in consequence of the scale of the Indicator being graduated to but 15 inches, the amount on the card must be doubled, which in this case would be 10 inches. The vacuum shown on the cards will never equal that shown by the mercurial guage attached to the condenser, the reason is, there is always more or less attenuated vapor remaining in the cylinder which renders the vacuum less perfect than that in the condenser. If the exhaust valves do not open quick enough, that is, if they have not the required lead, the corner at C will be less rounded, and the two lines will make more of a right angle, the necessary rounding is shown at C, fig. 2. The height the pencil is forced up above the atmospheric line H, will indicate correctly the pressure of steam in the cylinder, and the distance below the line the pressure of the vacuum, and if we wish to calculate the power of an engine, this will be the correct data.

Now from the above explanation, it is evident, that if an engine is working full stroke and there should be no impediment to the steam entering or leaving the cylinder, the cards would be perfect parallellograms, because the moment the steam was admitted to the Indicator the pencil would be forced up to the height due to the pressure of steam in the cylinder, where it would remain and form the line A B, fig. 2, until the completion of the stroke; it would then descend to C, and remain there until the return stroke was completed forming the line C D, the pressure due to the vacuum; on arriving at D, steam would be again admitted and the pencil forced up to A, the starting point, and so on. But as the steam takes time to enter and time to leave the cylinder, the cards will never be as above described, but always be more or less rounded or cut away at the corners.

J. M. M., U. S. N.

Useful Problems.

The following are the answers to the Problems in our last:—

Problem 1.—4 inches; hence the rule:—Divide the length in feet by the square root of the depth in inches, and multiply the quotient by 0.6.

2. In order to gain the maximum stiffness, we must make the breadth or thickness 6 inches, and depth, 10½; to give it the greatest strength, the breadth should be 7 inches and depth 9 3-4.

3. About 50,000 square miles; for he sees $\frac{2}{8000} : (\frac{4}{8000} + 1)$ of its surface, $= \frac{2}{8004}$; for there is visible one third the surface of a sphere when viewed from a point whose distance equals its diameter.

4. Hydrobromate of chlorinized cinchonina, and hydrochlorate of brominized cinchonina. They have the same composition and are isomorphous, yet not identical. The composition of the former is C19 (H20 Cl2) N2 O, H2 Br2; that of the latter C19 (H20 Br2) N2 O, H2 Cl2

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LITERARY NOTICES.

The Scalpel.

We have carefully perused the two numbers which have been issued of this Quarterly Magazine, edited and published by Edward H. Dixon, M. D. of No. 5 Mercer st. this city. The result of our examination is a firm conviction that it will be the means of doing a great deal of good, in the exposition of quackery in every garb arrayed, as connected with medical science. It fills up a vacuity in connection with the professions and practice of curing and preventing the ills incident to humanity, as there is not a sensible man living but has had his faith somewhat damaged by the *hocs* and *shocs* of professors learned and unlearned in the healing art. Dr. Dixon attacks all the nonsense and gibberish, and ignorance connected with the profession and stands upon the true ground—viz. knowledge in Nature's laws. These he expounds with the skill of a master and the fearlessness of a Catonian Censor. As a journal of health and eminently adapted for popular and professional reading, we heartily recommend it to the attention of all—no family in our land should be without it.

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The American Mechanic.

This is the title of a new weekly paper published at Athens, Geo., by an Association of mechanics named the "Mechanics Mutual Aid Association." Tho officers should communicate with G. J. Webb, Esq. of Buffalo, N. Y. and get a charter for a Mechanics Mutual Protection, of which Mr. Webb is grand officer for the U. S. This Order we believe has more than 100 associations in the U. S., and has one paper devoted to the advocacy of its principles, viz the Mechanics Advocate, Albany, N. Y. There seems to be a great movement going on among the mechanical classes in our country at present. We wish the Mechanic success.

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